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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/653,019	08/29/2003	Huitao Luo	200313342-1	2100

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HEWLETT PACKARD COMPANY  
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INTELLECTUAL PROPERTY ADMINISTRATION  
FORT COLLINS, CO 80527-2400

EXAMINER
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GE, YUZHEN

ART UNIT	PAPER NUMBER
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2624

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	04/11/2007	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/653,019	<b>Applicant(s)</b> LUO ET AL.	
	<b>Examiner</b> Yuzhen Ge	<b>Art Unit</b> 2624	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 21 February 2007.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-59 is/are pending in the application.
- 4a) Of the above claim(s) 1-27 and 52-59 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 28-31, 40 and 46-51 is/are rejected.
- 7) ☒ Claim(s) 32-39 and 41-45 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 29 August 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All   b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                  | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

*Examiner's Remark*

Applicant's response to election/restriction requirement, filed on Feb. 21, 2007, has been received and entered into the file. Species III is elected with traverse.

Applicant's arguments on the election requirement have been fully considered but they are not persuasive.

1) Regarding applicant's argument that the examiner is not authorized to require the proposed election requirement, the examiner disagrees. It is true that 37 CFR 1.146 authorizes the examiner to require an election of species to an application containing a generic claim to a generic invention (genus) and claims to more than one patentably distinct species. But it does not prohibit the examiner requiring an election of species when an application does not contain a generic claim, but contain multiple distinct species. In fact MPEP 808.01 describes distinct species and MPEP 809.02(a) describes with an example the form paragraphs to use when there is no generic claim. The species in the claimed invention are distinct inventions. According to 37 CFR 1.142 (a) if two or more independent and distinct inventions are claimed in a single application, the examiner in an office action will require the applicant in the reply to that action to elect an invention to which the claims will be restricted. Also see MPEP 806.

2) Regarding applicant's argument that the examiner has not established a Prima Facie case for the election requirement, the examiner disagrees. The examiner has concisely stated the particular reasons when classifying different species and they are repeated as follows:

I. Species corresponding to Figs. 6A-11B, an embodiment of segmenting an input image based on projections of color values of the pixels of the image onto two-dimensional

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thresholding planes and identifying candidate redeye pixel areas based on the segmented pixels of the input image (the examiner believes that claims 1-16 are in this species).

II. Species corresponding to Fig. 12, a distinct embodiment of identifying candidate redeye pixel areas in an input image based on two redeye color models and merging the results into a set of candidate redeye pixel areas (the examiner believes that claims 17-27 are in this species).

III. Species corresponding to Figs. 14-18B, a distinct embodiment of projecting image data into a feature space spanned by multiple features to generate feature vectors respectively representing the candidate redeye pixel areas in the feature (the examiner believes that claims 28-51 are in this species).

IV. Species corresponding to Fig. 29, a distinct embodiment of segmenting glowing redeye pixel areas from non-glowing redeye pixel areas and re-coloring regions of the segmented glowing redeye pixel areas (the examiner believes that claims 52-59 are in this species).

Each species are distinct because they are different designs, operation modes and functions. They may be usable together. But they are patentably distinct. The requirement of MPEG 806.05 (j) only requires satisfying one condition out of (A)-(C) that applies. The examiner has established a Prima Facie basis for requiring election between each of the proposed "species" of Groups I-IV.

3) Regarding applicant's argument that no valid reason exists for dividing among the related inventions, the examiner disagrees. Election species does not require pointing out different classifications. Different figures corresponding to different species/embodiments are

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used to divide among related inventions. But for the reference, Species I is classified in class 382, subclass 164. Species II is classified in class 382, subclass 165. Species III is classified in class 382, subclass 190 and Species IV is classified in class 382, subclass 167.

4) Conclusion: the examiner is authorized to require the proposed election requirement and has established a Prima Facie case for the election requirement.

### **DETAILED ACTION**

#### ***Claim Rejections - 35 USC § 102***

1. Claims 28, 46-48 and 51 are rejected under 35 U.S.C. 102(e) as being anticipated by Chen et al (US Patent 6,895,112 B2).

Regarding claim 28, Chen et al teach a method of processing an input image, comprising:

identifying a set of candidate redeye pixel areas in the input image (Fig. 2, col. 3, lines 1-32, col. 3, line 52-col. 4, line 45);

projecting input image data into a feature space spanned by multiple features to generate feature vectors respectively representing the candidate redeye pixel areas in the feature space (col. 3, lines 34-56, col. 4, line 58-col. 5, line 42, a color space is a feature space and color is the feature, the two dimensional space wherein the image lies is another feature space with aspect ratio or size as the feature, each group of pixel have multiple features and these multiple features are regarded as feature vectors, col. 5, line 62-col. 6, line 12); and

filtering candidate redeye pixel areas from the set based on the generated feature vectors (Fig. 2, col. 4, line 46-col. 5, line 42).

Regarding claim 46, Chen et al teach the method of claim 28, wherein at least one feature is based on pixels near a candidate redeye pixel area and classified as a skin tone pixel (col. 3, lines 19-56, col. 4, lines 1-61).

Regarding claim 47, Chen et al teach the method of claim 28, wherein at least one feature is based on an aspect ratio measurement of the candidate redeye pixel area (col. 5, lines 1-12).

Regarding claim 48, Chen et al teach the method of claim 28, wherein at least one feature is based on a ratio of pixels in a candidate redeye pixel area classified as redeye pixels (col. 4, lines 58-63, col. 5, lines 12-17).

Claim 51 is the corresponding system claim of claim 28. Chen et al teach a system (Fig. 2 and Fig. 5). Thus Chen et al teach claim 51 as evidently explained in the above-cited passages.

### ***Claim Rejections - 35 USC § 103***

2. Claim 28-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schildkraut et al (US Patent 6,292,574, cited by IDS) in view of Chen et al (US Patent 6,895,112).

Regarding claim 28, Schildkraut teach a method of processing an input image, comprising:

identifying a set of candidate redeye pixel areas in the input image ( Figs. 2 and 9, col. 5, line 23-col. 6, line 15);

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projecting input image data into a feature space spanned by multiple features to generate feature vectors respectively representing the candidate redeye pixel areas in the feature space (col. 5, line 23-col. 6, line 15, col. 6, lines 22-55, col. 7, lines 5-25, col. 8, lines 1-col. 9, line 65, the scores or the features calculated are considered to be feature vectors and they are in multiple features spaces, Figs. 2, 9 and 11).

eliminating candidate redeye pixel areas from the set based on the generated feature vectors (col. 6, lines 10-15, col. 9, lines 15-20, col. 10, lines 43-47, col. 11, line 1-3). However they do not explicitly teach filtering candidate redeye pixel areas. It is well-known in the art that eliminating pixels can be achieved by filtering. Chen et al teach filtering candidate redeye pixel areas (Fig. 2, col. 4, lines 45-67, col. 5, lines 1-17). It is desirable eliminate the non red-eye pixels with known technologies. Therefore it would have been obvious to one of ordinary skill in the art, at the time of invention, to filter candidate red-eye pixels so that only real red-eye pixels remain.

Regarding claim 29, Schildkraut et al and Chen et al teach the method of claim 28. Schildkraut et al further teach wherein at least some of the features are contrast features corresponding to respective measurements of local contrast (col. 9, lines 13-19).

3. Claims 28-31, 40 and 46-51 are rejected under 35 U.S.C. 103(a) as being unpatentable over Steinberg (6,873,743) in view of Chen et al (US Patent 6,895,112).

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Regarding claims 28 and 51, Steinberg teaches a method and a system of processing an input image (title, abstract, col. 14, lines 8-20), comprising:

identifying a set of candidate redeye pixel areas in the input image (Fig. 2(a), col. 6, lines 47-55, col. 8, lines 18-51);

projecting input image data into a feature space spanned by multiple features to generate feature vectors respectively representing the candidate redeye pixel areas in the feature space (col. 9, line 66-col. 10, line 13, Figs. 5 and 6, col. 10, line 46-col. 11, line 36, col. 11, line 43-col. 12, line 51).

eliminating candidate redeye pixel areas from the set based on the generated feature vectors (col. 9, line 66-col. 10, line 13, Figs. 5 and 6, col. 10, line 46-col. 11, line 36, col. 11, line 43-col. 12, line 51).

However they do not explicitly teach filtering candidate redeye pixel areas. It is well-known in the art that eliminating pixels can be achieved by filtering. Chen et al teach filtering candidate redeye pixel areas (Fig. 2, col. 4, lines 45-67, col. 5, lines 1-17). It is desirable eliminate the non red-eye pixels with known technologies. Therefore it would have been obvious to one of ordinary skill in the art, at the time of invention, to filter candidate red-eye pixels so that only real red-eye pixels remain.

Regarding claim 29, Steinberg and Chen et al teach the method of claim 28. Steinberg further teaches wherein at least some of the features are contrast features corresponding to respective measurements of local contrast (col. 12, lines 27-52).



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Regarding claim 30, Steinberg and Chen et al teach the method of claim 29. Steinberg further teaches wherein the contrast features are orientation independent with respect to the input image (col. 12, lines 27-52).

Regarding claim 31, Steinberg and Chen et al teach the method of claim 29. Steinberg further teaches wherein a given contrast feature weight is computed based on a feature template and a feature plane (col. 12, lines 27-52, the feature template is the equation on for computing  $C_k$  and the feature plane is scalar image of the intensity value or the luminance image).

Regarding claim 40, Steinberg and Chen et al teach the method of claim 31. Steinberg further teaches wherein each feature plane is a scalar image computed from input image data (col. 12, lines 27-52).

Regarding claim 46, Steinberg and Chen et al teach the method of claim 28. Steinberg further teaches wherein at least one feature is based on pixels near a candidate redeye pixel area and classified as a skin tone pixel. (207 in Fig. 2(a))

Regarding claim 47, Steinberg and Chen et al teach the method of claim 28. Steinberg further teaches wherein at least one feature is based on an aspect ratio measurement of the candidate redeye pixel area (205 in Fig. 2(a), col. 10, line 46-col. 11, line 13).

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Regarding claim 48, Steinberg and Chen et al teach the method of claim 28. Steinberg further teaches wherein at least one feature is based on a ratio of pixels in a candidate redeye pixel area classified as redeye pixels (col. 11, lines 42-60, 206 in Fig. 2(a)).

Regarding claim 49, Steinberg and Chen et al teach the method of claim 28. Steinberg further teaches wherein at least one feature weight is computed based on a dynamic range of pixel values in a central basis region (col. 12, lines 27-52, the surviving segment is regarded as the central basis region).

Regarding claim 50, Steinberg and Chen et al teach the method of claim 28. Steinberg further teaches wherein at least one feature weight is computed based on a standard deviation of pixel values in a central basis region (col. 10, lines 46-60, the variance is a standard deviation).

#### *Allowable Subject Matter*

4. Claims 32-39 and 41-45 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The following is a statement of reasons for the indication of allowable subject matter. The prior art fails to teach the listed claims each of which specifically comprises the following listed feature(s) in combination with other limitations in the respective claims:

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Claim 32

-- wherein the feature template is a concentric template specifying a contrast measurement between a central basis region and a basis region surrounding the central basis region.

Claim 35

-- wherein the feature template is a circular template specifying a contrast between a central basis region and a basis region adjacent to the central basis region.

Claim 38

-- wherein the feature template is a circular template specifying a contrast measurement between a pair of basis regions respectively located at opposite ends of a first axis crossing a central region at a first angle and an adjacent pair of basis regions respectively located at opposite ends of a second axis crossing the central region at a second angle different from the first angle.

Claim 44

-- wherein each feature template is defined by a set of basis regions and a scale factor.

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***Conclusion***


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Yuzhen Ge whose telephone number is 571-272 7636. The examiner can normally be reached on 7:30am-4:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bhavesh Mehta can be reached on 571-272-7453. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Yuzhen Ge  
Examiner  
Art Unit 2624

WENPENG CHEN  
PRIMARY EXAMINER

  
3/26/07